2. (Amended) The valve of claim 1, wherein a weep hole extends from through said valve body into said [diaphragm] internal volume chamber.

3. (Amended) The valve of claim 1, wherein said outer peripheral surface of said island [has] is tapered [side walls] and said throttling gap is between said outer peripheral surface [side walls] and said [throttling] inner peripheral surface of said annulus.

4. (Amended) The valve of claim 1, wherein said drive means comprises a threaded shaft on said diaphragm and wherein said operator means comprises a motor driven rotor in threaded engagement with said drive means.

5. (Amended) The valve of claim 4, further comprising a drive housing, and wherein said rotor is mounted in thrust bearings captured between the rotor and the drive housing.

6. (Amended) The valve of claim 1, wherein the valve body is formed from a corrosive chemical resistant material.

7. (Amended) The valve of claim 1, further comprising a drive housing, and wherein said [body has an upper and lower section and said] diaphragm structure is retained [therebetween] between said drive housing and said valve body at said peripheral edges [of said diaphragm].

8. (Amended) The valve of claim 4, wherein the [roter] rotor is driven by a stepper motor.

9. (Amended) The valve of claim 4, wherein said rotor is biased to provide a pre-load to oppose fluid pressure.

10. (Amended) The valve of claim 1, wherein said primary and secondary diaphragms [surfaces] are provided with annular ripples that deform as the diaphragm structure flexes.

Please add new claims 11-32 as follows:

11. (New) A free draining throttling valve comprising:

(a) a valve body defining an inlet and an outlet;

(b) a first throttling surface positioned between said inlet and outlet, said first throttling surface comprising an island having a generally annular outer peripheral surface;

(c) a diaphragm structure including a primary diaphragm and a secondary diaphragm, said primary and secondary diaphragms being spaced-apart and being joined at peripheral edges to form an internal volume chamber in said diaphragm structure;

(d) said primary diaphragm having a lower surface defining a second throttling surface, said second throttling surface including an annulus with an inner peripheral surface opposing the outer peripheral surface of said island, at least a portion of said second throttling surface sealingly engageable with at least a portion of said first throttling surface; and

(e) a drive assembly operably coupled with said diaphragm structure for selectively positioning said diaphragm structure in a flow blocking position in which the second throttling surface is sealingly engaged with the first throttling surface, thereby closing off a fluid flow through said valve, and further for selectively positioning said diaphragm structure in a plurality of open flow control positions in which a throttling gap is established between said first and second throttling surfaces, said throttling gap causing a substantially linear pressure drop in the fluid flow with increasing flow velocity.

12. (New) The valve of claim 11, wherein the internal volume chamber is fluidly coupled with the atmosphere through a weep hole.

13. (New) The valve of claim 11, wherein each of the primary and secondary diaphragms have annular ripples that deform as the diaphragm structure flexes.

14. (New) The valve of claim 11, wherein the drive assembly includes a drive train operably coupled with the flexible diaphragm structure and an operator operably coupled with the drive train.

15. (New) The valve of claim 14, wherein the drive train includes a threaded shaft on the flexible diaphragm structure and a rotor threadedly engaged with the threaded shaft.

16. (New) The valve of claim 15, wherein the rotor is rotatably mounted between a pair of thrust bearings.

17. (New) The valve of claim 16, wherein the rotor is biased to provide a pre-load to oppose fluid pressure.

18. (New) The valve of claim 16, wherein the operator is a stepper motor.

19. (New) The valve of claim 11, wherein the body portion is formed from chemically resistant polymer material.

20. (New) The valve of claim 19, wherein the chemically resistant polymer material is PTFE.

21. (New) A throttling valve comprising:

a body portion defining an inlet passage, an outlet passage, and a fluid cavity in fluid communication with the inlet passage and the outlet passage;

an upwardly facing valve seat disposed around the inlet passage in the fluid cavity, said valve seat comprising a projecting island having an outer surface with an outer peripheral surface portion;

a flexible diaphragm structure having a bottom surface facing into the fluid cavity so as to define the top wall of the fluid cavity, the bottom surface having a valve portion opposing the valve seat, the valve portion defining a recess adapted to receive said projecting island therein, the recess having an inner surface with an inner peripheral surface portion opposing the outer peripheral surface portion of the projecting island, the valve portion being selectively positionable with the flexible diaphragm structure in a flow blocking position wherein the valve portion is sealingly engaged with the valve seat thereby closing off a fluid flow through the valve, the valve portion being further selectively positionable in a plurality of open flow control positions wherein a throttling gap is established between the outer peripheral surface portion and the inner peripheral surface portion, the throttling gap presenting a substantially linear pressure drop in the fluid flow with increasing flow velocity therethrough; and

a drive assembly operably coupled with the flexible diaphragm structure for selectively positioning the valve portion.

22. (New) The valve of claim 21, wherein the flexible diaphragm structure includes a primary diaphragm portion and a secondary diaphragm portion, the primary and secondary diaphragm portions being spaced-apart to define an internal volume chamber in the diaphragm structure.

23. (New) The valve of claim 22, wherein the internal volume chamber is fluidly coupled with the atmosphere through a weep hole.

24. (New) The valve of claim 22, wherein each of the primary and secondary diaphragm portions have annular ripples that deform as the diaphragm structure flexes.

25. (New) The valve of claim 21, wherein the drive assembly includes a drive train operably coupled with the flexible diaphragm structure and an operator operably coupled with the drive train.

26. (New) The valve of claim 25, wherein the drive train includes a threaded shaft on the flexible diaphragm structure and a rotor threadedly engaged with the threaded shaft.

27. (New) The valve of claim 26, wherein the rotor is rotatably mounted between a pair of thrust bearings.

28. (New) The valve of claim 27, wherein the rotor is biased to provide a pre-load to oppose fluid pressure.

29. (New) The valve of claim 25, wherein the operator is a stepper motor.

30. (New) The valve of claim 21, wherein the body portion is formed from chemically resistant polymer material.

31. (New) The valve of claim 30, wherein the chemically resistant polymer material is PTFE.

32. (New) A process for throttling a fluid flow comprising steps of:

directing the fluid flow through a valve, the valve including a valve seat comprising a projecting island having an outer surface with an outer peripheral surface portion, and further including a selectively positionable valve portion opposing the valve seat, the valve portion defining a recess adapted to receive said projecting island therein, the recess having an inner surface with an inner peripheral surface portion opposing the outer peripheral surface portion of the projecting island; and

selectively positioning the valve portion so as to establish a throttling gap between the outer peripheral surface portion and the inner peripheral surface portion so that the throttling gap presents a substantially linear flow resistance with increasing flow velocity therethrough.